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DeVore et al.

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- [54] VISCOELASTIC COLLAGEN SOLUTION FOR OPHTHALMIC USE AND METHOD OF PREPARATION
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Related U.S. Application Data

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- [58] Field of Search 530/356, 353, 402; 128/DIG. 8; 604/51; 514/21, 801, 912; 523/113; 3/1

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ABSTRACT

Chemically-modified collagen is prepared by reacting native collagen with a di or tri-carboxylic acid halide, di or tri-sulfonyl halide, di or tri-anhydride, or di or tri-reactive active ester coupling agent. The reaction is done in a controlled manner so that the degree of cross-linking is limited. Any remaining lysine epsilon amino groups present in the coupled collagen product may be converted to carboxyamido or sulfonamido groups by acid halide, anhydride, sulfonyl halide or active ester amine-modifying agents. The resultant product when dissolved in a physiological buffer provides a viscoelastic solution having therapeutic application in a variety of surgical procedures, particularly in ophthalmic surgery. This viscoelastic solution "melts," i.e., exhibits a dramatic loss of viscosity, when subjected to temperatures of between 32° and 48° C.